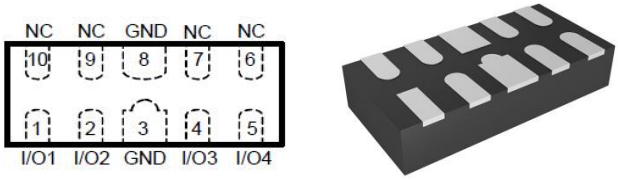
Transient Voltage Suppressor

Version: A3 2024-09-12

Features

- IEC 61000-4-2(ESD)±15KV(air), ±8KV(contact)
- ESD Maximum ±17KV (air), ±12KV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Lightning) 4 A (8/20us)
- 150Watts peak pulse power per line (tp=8/20μS)
- Low capacitance: 0.5 pF typical (I/O to I/O)
- Low operating voltage: 5V
- Low clamping voltage
- Moisture sensitivity level: level 1
- Weight 15 mg (Approximate)
- Small package: DFN2510-10L

Exterior



DFN2510-10L

Application Information

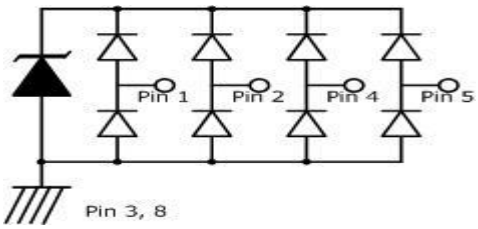
- High Definition Multi-Media Interface (HDMI)
- Digital Visual Interface (DVI)
- Unified Display Interface (UDI)
- Display Port
- MDDI Ports
- PCI Express
- Serial ATA

Package (top view)

Agency Approvals

Icon	Description
RoHS	Compliance with 2011/65/EU
HF	Compliance withIEC61249-2-21:2003
Pb	Mean lead free

Schematic



Part Number and Electrical Parameter

Part Number	Mark	I_{DRM}@ V_{DRM}		V_{BR}①@ I_R		Vc@Ipp②		Vc@Ipp②		CO③	
		μA	V	V	mA	V	A	V	A	pF I/O-I/O	pF I/O-GND
		MAX		MIN		MAX		MAX		MAX	MAX
BV_ULC0524P	P524	5	5	6	1	15	1	25	4	0.8	1.3

Absolute maximum ratings measured at T_A= 25°C RH = 45%-75% (unless otherwise noted).

① V_{BR} is measured at I_R=1mA

② Surge Waveform: 8/20 μ S.

③ Off-state capacitance is measured in V_{DC}=0V, V_{RMS}=0.3V, f=1MHz.

Part Numbering System

BV ULC0524P
(1) (2)

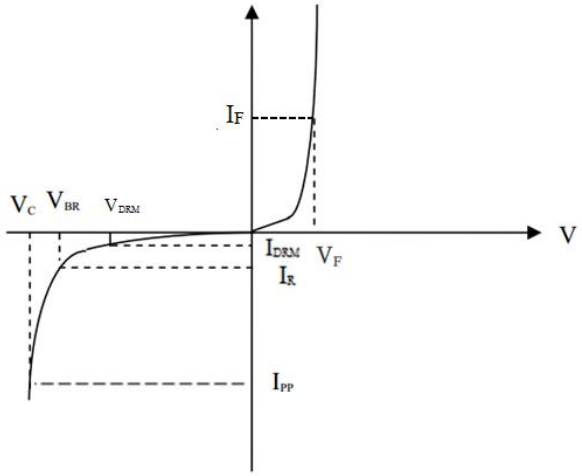
(1) Bencent Transient Voltage Suppressor
(2) Series: ULC0524P etc.

Mark

P524: Part Number

V-I Curve

Parameters	Definition
V_C	Clamping Voltage
I_{pp}	Surge waveform8/20 μ s
V_{DRM}	Stand-off Voltage
V_{BR}	Breakdown Voltage
I_{DRM}	Reverse Leakage Current
I_R	Test Current
Ppp	Peak Pulse Power Dissipation



Thermal Considerations

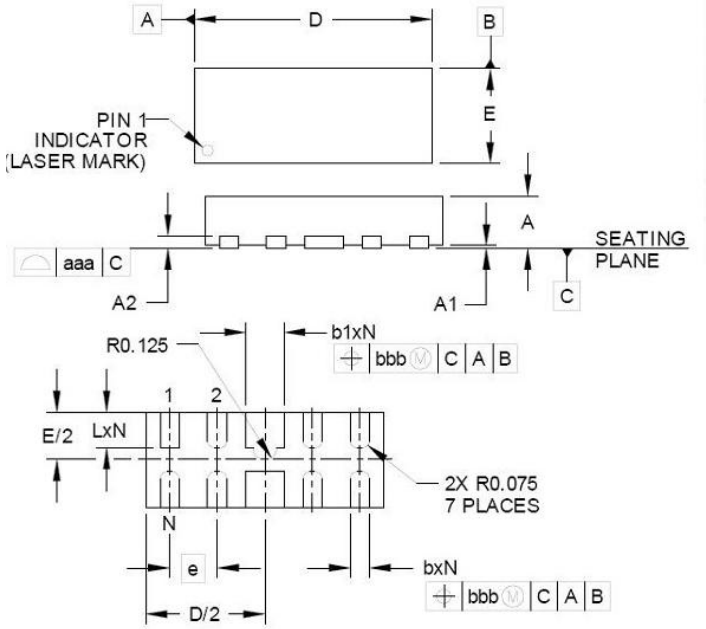
symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-55 to +150	℃
T_S	Storage Temperature Range	-55 to +150	℃

Environmental Characteristics

Testing items	Technical standards
High temperature Reverse Bias Test	Temperature: 150±3℃ Bias=80%V_{DRM} Time: 168H
High Temperature Life Test	Temperature: 150℃ Time: 168H
High-low Temperature Cycle test	Temperature: From -40℃ to125℃ Dwell time: 30min, 10-100cycles
High Temperature &High Humidity Test	Temperature: 85℃ Humidity: 85% Time: 168H
Pressure cooker Test	Temperature: 121℃, 2atm. Humidity: 100% Time: 24H-168H
Resistance of soldering heat	Temperature: 260±5℃ Time of dip soldering: 10s, 3times

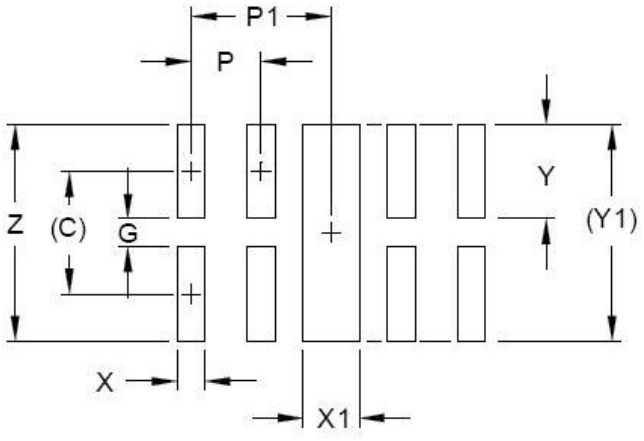
Note: The above testing items can be specified by customers by contacting Bencent service

Product Dimensions



REF	mm	inch
A	0.50±0.05	0.020±0.002
A1	0.03±0.03	0.001±0.001
A2	0.13（Max）	0.005（Max）
b	0.20±0.05	0.008±0.002
b1	0.40±0.05	0.016±0.002
D	2.50±0.10	0.098±0.004
E	1.00±0.10	0.039±0.004
e	0.50	0.020
L	0.38±0.05	0.015±0.002

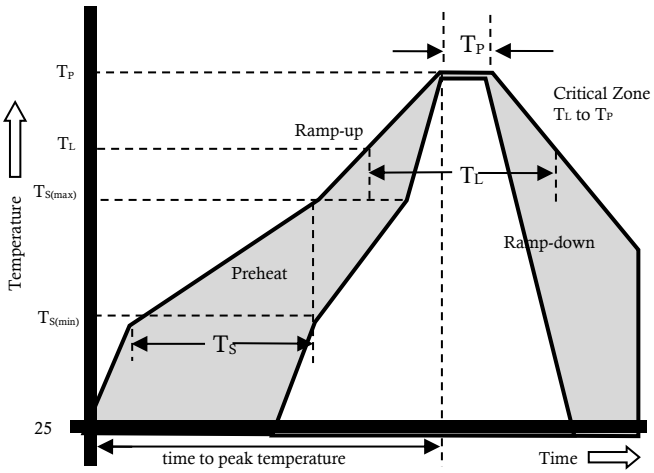
Recommended Soldering Pad



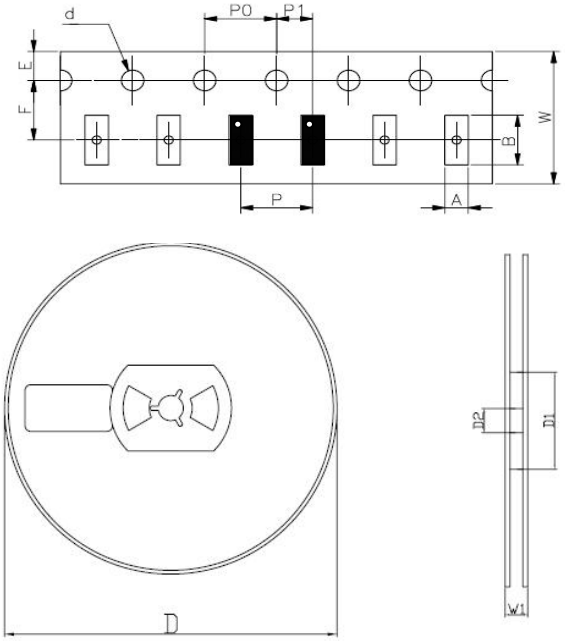
REF	mm	inch
C	0.875	0.034
G	0.20	0.008
P	0.50	0.020
P1	1.00	0.039
X	0.20	0.008
X1	0.40	0.016
Y	0.65	0.026
Y1	1.55	0.061
Z	1.55	0.061

Reflow Profile

Reflow Condition		Pb-Free assembly
Pre Heat	Temperature Min	150°C
	Temperature Max	200°C
	Time (min to max)	60 – 180 secs
Average ramp up rate (Liquid) Tamp (T_L) to peal		3°C/s max
T_S(max) to T_L - Ramp-up Rate		3°C/s max
Reflow	- Temperature (T_L) (Liquid)	217°C
	- Temperature (T_L)	60 – 150 secs
Peak Temperature (T_P)		260+0/-5 °C
Time within 5°C of actual peak Temperature (T_P)		8– 15secs
Ramp-down Rate		6°C/s max
Time 25°C to peak Temperature (T_P)		8 mins Max.
Do not exceed		260°C



Package Reel Information



REF	mm	inch
A	1.2+/-0.1	0.047+/-0.004
B	2.7+/-0.1	0.106+/-0.004
d	1.50+0.1/-0	0.059+0.004/-0
D	178+/-1.0	7.01+/-0.039
D1	55+/-3	2.165+/-0.118
D2	13+/-0.5	0.512+/-0.020
E	1.75+/-0.1	0.069+/-0.004
F	3.6+/-0.2	0.138+/-0.008
P	4.0+/-0.2	0.158+/-0.008
P0	4.0+/-0.2	0.158+/-0.008
P1	2.0+/-0.2	0.079+/-0.008
W	8.0+/-0.2	0.315+/-0.008
W1	14.4+/-0.5	0.567+/-0.020

Outline	Reel (pcs)	Per Carton (pcs)	Reel Diameters (mm)	Carton Size(mm)		
				L	W	H
Taping	3,000	90,000	177	380	220	205